

## MECHANICAL PROPERTIES

Norm	Steel grade	Delivery condition +C			Delivery condition +LC			Delivery condition +SR			Delivery condition +A			Delivery condition +N		
		ReH Mpa	Rm Mpa	All. %	ReH Mpa	Rm Mpa	All. %	ReH Mpa	Rm Mpa	All. %	ReH Mpa	Rm Mpa	All. %	ReH Mpa	Rm Mpa	All. %
EN 10305-1 (Seamless tubes)	E215	0.8Rm	430	8	0.7Rm	380	12	280	380	16	0.5Rm	280	30	215	290-430	30
	E235	0.8Rm	480	6	0.7Rm	420	10	350	420	16	0.5Rm	315	25	235	340-480	25
	E355*	0.8Rm	640	4	0.7Rm	580	7	450 <sup>A</sup>	580	10	0.5Rm	450	22	355	490-630	22
	E410	0.8Rm	750	4	0.7Rm	620	8	590	690	12	0.5Rm	520	22	410	550-700	22
	MW-Grade 660	-	-	-	-	-	-	660	700	15	-	-	-	-	-	-
EN 10305-2 (Welded tubes)	E155	0.8Rm	400	6	0.7Rm	350	10	245	350	18	0.5Rm	260	28	155	270-410	28
	E195	0.8Rm	420	6	0.7Rm	370	10	260	370	18	0.5Rm	290	28	195	300-440	28
	E235	0.8Rm	490	6	0.7Rm	440	10	325	440	14	0.5Rm	315	25	235	340-480	25
	E275	0.8Rm	560	5	0.7Rm	510	8	375	510	12	0.5Rm	390	22	275	410-550	22
	E355*	0.8Rm	640	4	0.7Rm	590	6	435	590	10	0.5Rm	450	22	355	490-630	22
EN 10305-4 (Seamless tubes)	E215	-	-	-	-	-	-	-	-	-	-	-	-	215	290-430	30
	E235*	-	-	-	-	-	-	-	-	-	-	-	-	235	340-480	25
	E355	-	-	-	-	-	-	-	-	-	-	-	-	355	490-630	22

**Note: the values stated in the table are the minimum requirements foreseen by the norm (manufacture specification for the steelgrade MW-Grade 660). When two values are stated, they have to be considered as the minimum and maximum values.**

<sup>A</sup> For tubes with OD > 160 mm ReH≥420 Mpa.

\* Standard stock.

The minimum elongation values refer to longitudinal samples.

For tubes according to EN 10305-4, for dia ≤ 30 mm and w.t. ≤ 3 mm, the yield strength min. values are 10 Mpa lower than the values given in the table.

## STEELGRADES AND COMPARISON TABLE

EN Norms			UNI Norms	DIN Norms	AFNOR Norms	Steels according to manufacturers' specifications
EN 10305-1	EN 10305-2	EN 10305-4				
E215			Fe280 UNI 7945	St 30Si DIN 2391	Tu37b NF A 49-310	
E235			Fe360 UNI 7945	St 35 DIN 2391	-	
E355			Fe490 UNI 7945	St 52 DIN 2391	Tu52b NF A 49-310	
E410			-	-	-	P460 (StE460)
	E155		Fe280 UNI 7946	-	-	
	E195		Fe320 UNI 7946	RSt 34.2 DIN 2393	-	
	E235		Fe360 UNI 7946	RSt 37.2 DIN 2393	-	
	E275		-	-	-	
	E355		Fe490 UNI 7946	St 52.3 DIN 2393	-	
		E215	Fe360 UNI 7946	RSt 34.2 NBK DIN 2391	-	
		E235	-	RSt 37.2 NBK DIN 2391	-	
		E355	Fe490 UNI 7946	St 52.3 NBK DIN 2391	-	